

ABSTRACT OF THE DISCLOSURE

A heat pump and hydrogen compression apparatus includes a heat exchange chamber through which a heating medium source circulates, a pair of hydrogen chambers formed on both sides of the heat exchange chamber, and hydrogen storage alloy pipe groups, one end portion of which imports into the pair of hydrogen chambers, and whose
5 other end portion extends in a free state into the heat exchange chamber, and that form a pair whose one end portions that are on the side of the pair of hydrogen chambers are each fixed on that side, wherein the hydrogen storage alloy pipe groups have hydrogen storage alloy pipes provided a hydrogen storage alloy inside, the free end portion on the
10 heat exchange chamber side of the hydrogen storage alloy pipe is closed off, and hydrogen circulation holes are opened in the end portions on the hydrogen chamber sides of the hydrogen storage alloy pipe.